REMARKS

Applicant respectfully submits the following to show that the claims as now written are definite and are allowable over Greene patent 3,525,330 cited and other references cited by the Examiner:

1. Applicant has filed a request for continued examination with the instant amendment. This amendment contains claims 1-41, 44-54, and 78-109. Many of these claims are in amended form to overcome informalities noted by the applicant upon further review of the claims and to assure that they are allowable over the prior art cited by the Examiner.

2. Applicant has amended claims 1-6 and 96 in accordance with the suggestions of the Examiner in paragraph 2 of the Office Action. Claims 1-6, and 96 as amended are believed to overcome the objections of the Examiner. Claims 1-6, and 96 appear to be the only claims that the Examiner has objected to for informalities. However, applicant has amended a number of other claims to address informalities as well. Applicant respectfully requests the Examiner to identify by claim number and line number any additional claims the Examiner believes to contain informalities.

The Examiner has also rejected claims 1-6 and 95 under 35 U.S.C. §§ 101 and 112. As now amended, claims 1-6 and 96 meet the requirements of 35 U.S.C. 101 and 35 U.S.C. 112, first paragraph.

3. Applicant has cancelled claims 42 and 43 which were rejected under 35 U.S.C. § 112.

4. (a) Claims 1-4, 7-11, 16, 19-24, 29, 30, 32-41, 44-54, and 78-109 have been rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 3,525,330 (Greene). These claims as now written are patentable over Greene for a number of reasons.

(b) Applicant provides a vest which includes a number of electrodes such as electrodes individually disposed at positions V_1- V_6. These positions V_1-V_6 are provided in the vest for a patient having any individual one of a plurality of different sizes such as small, medium and large. A plurality of amplifiers are provided, each connected to an electrode disposed at an individual one of the positions V_1-V_6 to indicate the characteristics of the heart signal of the patient at the individual one of the V_1-V_6 positions for any individual one of the patient sizes. During ambulatory movements of the patient, each amplifier receives noise signals from the individual one of the V_1-V_6 positions and processes those signals to obtain a noise level below that affecting the characteristics of the signals at the electrodes. Each amplifier provides the signal with characteristics corresponding to the characteristics of the signal at the associated electrode positions.

In this way, a single vest is provided with electrodes at the V_1-V_6 positions for any individual one of different sizes of patient to support the amplifiers during the ambulatory movement of the patient. This single vest is easily adaptable for the patient having any individual one of the different sizes to position the electrodes at the V_1-V_6 positions for the patient of that particular size. Applicant thus provides a vest with substantially universal adaptability for a patient having any individual one of different sizes. In this way, a single vest can be used by a doctor to monitor the heart beats of a large number of patients.

(c) Judging from the prior art cited by the Examiner, no one prior to applicant has provided a vest which performs on a substantially universal basis for patients of different size. This prior art includes Greene patent 3,525,330 cited by the Examiner. No one has provided a universal vest for a patient having any individual one of a plurality of different sizes even though doctors have been monitoring heart beats of patients for generations.

The Greene patent, issued more than thirty-six (36) years ago, discloses an apparatus which is exactly the opposite in concept and function to applicant's invention. Greene actually teaches away from applicant's invention rather than toward applicant's invention.

Whereas Applicant provides a universally adaptable vest for a patient having any individual one of a plurality of different sizes, Greene provides a vest custom made for a single patient with size characteristics individually adapted only to the size of the single patient. Because of this, Greene teaches away from applicant's invention rather than toward applicant's invention.

(d) There are other significant and patentable differences between applicant's invention (as recited in the claims) and Greene. Applicant provides a vest constructed to be worn by a patient when the patient has any individual one of a plurality of different sizes. The vest has a plurality of positions predetermined for receiving electrodes. The predetermined positions of the electrodes in the vest for a patient of any individual one of the different sizes are different from the predetermined positions of the electrodes in the vest for the patient having any of the other different sizes. Each of the electrodes provides signals indicating the characteristics of the patient's heart for an individual one of the V_1-V_6 positions when the patient has any individual one of the different sizes. By way of illustration, these features are recited in claim 1. In contrast, Greene provides a vest custom tailored for only a single patient of only a single size.

In other words, a doctor has to provide only a single one of applicant's vests in order to monitor the doctor's patients, whether the patients are of a small, medium or large size. In contrast, a doctor using Greene's vests has to provide a separate vest for each of the doctor's patients, particularly since Greene's vest is custom made to fit only a single sized patient. This provides complications regarding storage space, expense accountability and time when the doctor uses Greene's vests to monitor the heart beats of the doctor's patients.

(e) The Examiner's position appears to be that it would be obvious from the prior art to provide applicant's invention. As an example of the prior art, the Examiner cites Greene. If it would have been obvious to provide applicant's invention from the prior art, how is it there is no prior art disclosing a vest which is constructed to be used to monitor a patient's heart when the patient has any individual one of a plurality of different sizes. Furthermore, Greene's patent issued in 1970 and applicant filed his application in 2003. If applicant's invention was obvious to a person of ordinary skill in the art how is it that no one has disclosed applicant's invention in the 33 years between 1970 and 2003 when applicant filed this application?

On page 5 of the Office Action cited and dated 03/12/2007, the Examiner interpreted Greene's invention as follows relative to claim 1:

> "a plurality of positions (19) in the vest for receiving the electrodes, individual positions in the plurality of positions being disposed to receive the electrodes for signals indicating characteristics of the patient's heart when the patient has a small, medium or large size, the positions of the electrodes for the patient of small, medium and large size being individual (col. 1, lines 56-58) relative to the positions of the electrodes for patient of the other ones of the small, medium and large sizes."

However, contrary to the indication of the Examiner in the above quotation, Greene does not disclose or suggest that individual positions in the vest are "disposed to receive the electrodes for signals indicating characteristics of the patient's heart when the patient has any individual one of a small, medium or large size." If anything, Greene teaches in the opposite direction in the following statement in column 1, lines 56-58:

> "the placement of electrodes on a particular vestlike garment being <u>personalized to a particular individual</u> for whom the garment is being fitted." (underlining supplied)

There is nothing in the above quotation to indicate that Greene contemplated a vest suitable for use on a patient having any individual one of a plurality of different sizes.

(f) There is yet another significant reason why Green is not appropriate as a prior art reference - unity-gain amplifiers connected directly to respective electrodes are not taught by the Greene patent. None of the references cited by the Examiner on page 4 bottom and page 5 (top) disclose unity-gain amplifiers. Furthermore, the Examiner has not cited any prior art which discloses a vest with a plurality of electrodes and with unity-gain amplifiers attached directly to the electrodes. The Examiner also has not cited any prior art reference which discloses amplifiers having characteristics of eliminating noise levels below that providing measurable interference with the signals on the electrodes. This is certainly not disclosed in column 1, lines 56-58 of Greene as the Examiner has attempted to indicate on page 5 of the Office Action.

In applicant's invention, unity-gain amplifiers are connected directly to the electrodes. This connection is important in reducing noise from the signals and preserving original signals from the heart. Greene does not disclose any amplifiers. Furthermore, none of the other references cited by the Examiner discloses a unity-gain amplifier that is directly connected to an electrode.

The Examiner contends that it would have been obvious to a person of ordinary skill in the art to combine Greene with a unity-gain amplifier. However, the Greene patent is now 37 years old and no prior art has disclosed a system in that period of time for combining electrodes that are directly connected with unity-gain amplifiers to monitor the heartbeats of a patient. A period of 37 years is an extremely long period of time in a field as active as systems for monitoring heartbeats of a patient.

(g) The Examiner has made the following statements in the Office Action:

> "Examiner takes Official Notice that it is well known to employ unity-gain amplifiers to ensure that doing a measurement of a voltage does not disturb the circuit producing the voltage to be measured"

However, the Official Notice does not indicate that any prior art reference substantially reduces noise to a level below that materially affecting the signals at the electrodes. The Official Notice also does not disclose any unity-gain amplifiers connected directly to recording electrodes for reducing noise to a level preventing the noise from materially affecting the signals at the amplifiers from the electrodes. Furthermore, the Official Notice does not disclose that the unity-gain amplifiers of the prior art were adapted to be connected directly to electrodes in a vest to be worn by a patient having any individual one of a plurality of different sizes of the patient. As previously indicated, Greene does not disclose any of this. The other references cited by the Examiner also do not disclose this. Thus, Greene and the other prior art references cannot be combined to reject applicant's claims.

Greene also fails to disclose additional recitations in the claims. For example, Greene does not disclose that electrodes are positioned at predetermined positions in the vest to monitor V_1 –V_6 positions in the patient for any individual one of the plurality of different sizes of patient. Greene also does not disclose that the amplifiers provide the signals from the predetermined ones of the V_1 –V_6 positions when the patient has the individual one of the different sizes.

(h) Claim 2 depends from claim 1 and is allowable over Green for the same reasons as claim 1.

(i) Furthermore, the references including Greene do not disclose that the electrodes measure the predetermined ones of the V_1 –V_6 positions in the patient when the patient has an individual one of the small, medium and large sizes. There is also no disclosure in the references including Greene that the electrodes are disposed on the vest in row and columns. (Claim 3). No disclosure is further provided in the references including Greene that each of the electrodes in the vest is disposed in the vest in an individual one of the columns relative to the disposition of the other electrodes in the vest when the patient has any individual one of the different sizes. Contrary to the position of the Examiner, the features recited in claim 3 are not inherently in the vests. Unity-gain amplifiers may be known in the prior art but they do not perform the functions recited in claim 3 for the reasons discussed above in detail. For example, they do not reduce noise at the amplifiers to a level below that affecting the characteristics at the amplifiers of the signals from the electrodes.

(j) The Examiner has rejected a number of the claims on the basis of the alleged prior knowledge of the positions of the V_1-V_6 electrodes so that it would have been obvious to one of ordinary skill in the art to position the electrodes of Greene at the positions V_1-V_6. In support of his position, the Examiner has cited column 1, lines 55-57 of Greene. However, in this portion of his specification, Greene teaches away from applicant's invention since Greene states:

> "… the placement of electrodes on a particular vestlike garment being personalized to a particular individual for whom the garment is being fitted." (emphasis added)

As previously indicated, Greene provides a customized vest personalized for only a single patient and applicant provides a substantially universalized vest constructed to provide for an electrocardiogram for any individual one of a plurality different size patients. This means that the doctor may have to use only a single vest to monitor the heartbeats of the doctor's patients regardless of the different sizes of the patients.

(k) Applicant also provides unity-gain amplifiers. The amplifier reduces noise below a level affecting the characteristics of the signals at the amplifiers from the electrodes and provide outputs with substantially the same characteristics as the characteristics of the signals introduced to the amplifiers from the electrodes at the V_1-V_6 positions. None of the prior art references, including Greene, cited by the Examiner, discloses unity-gain amplifiers directly connected to electrodes. The amplifiers in the cited references do not provide the advantages specified in this amendment for the unity-gain amplifiers. The references also do not disclose that the unity-gain amplifiers are adapted to be supported by the vest and are also adapted to be connected to electrodes in the vest to reduce noise, resulting from ambulatory movements of the patient, to a level below that affecting the characteristics of the signals' on the electrodes.

(l) Claim 4 depends from claim 1, and is allowable over the references including Greene for the same reason as claim 1. The references including Greene further do not disclose the features recited in claim 4. Furthermore, the features recited in claim 4 are not inherent to electrocardiograms. If these features were inherent as the Examiner has indicated, the Examiner should be able to cite references disclosing those features on the basis of a relatively simple search of the prior art.

5. Claims 7-11 and 19 are allowable over the references for the reasons discussed above in detail.

6. The Examiner has rejected claims 16, 20-24, 29, 30 and 44-54 on the basis of an Official Notice in a previous Office Action that it is "old and well known to include a low pass filter in an amplifier used for ECG signals to eliminate noise and other signal components".

Claim 16 is allowable over Greene because it is dependent from claim 14 which also is allowable over Greene. Claim 16 is further allowable over the references including Greene because it recites that the amplifiers are disposed on the vest and are adapted to be connected to the electrodes to provide for the production of signals from

the electrodes at the amplifiers, even when the patient is ambulatory, without materially affecting the characteristics of the signals from the electrodes. The Examiner should be required to cite prior art references disclosing these features. The cited references should also disclose that each of the amplifiers is responsive to the signals from an individual one of the electrodes regardless of the patients size. The discussion in this paragraph also applies to claims 20-24, 29, 30 and 44-54.

7. The Examiner has stated the following regarding claims 32-39:

> "Regarding claims 32-39, the various claimed electrode configurations are simply in accordance with the V_1 –V_6 positions which is old and well known."

Applicant admits that V_1 –V_6 electrodes are known. However, the positions of the V_1 –V_6 electrodes are not known, particularly when the electrodes are disposed on a vest which can be worn by a patient having any individual one of a plurality of different sizes. In order to support a rejection of claims 32-39, the Examiner would have to cite prior art references which disclose a vest for a patient having any individual one of a plurality of different sizes and which provides the same electrodes for each individual one or the V_1 – V_6 positions regardless of the sizes of the patients, which the Examiner has failed to do.

8. The Examiner has stated the following responding claims 40, 41, 44 and 45:

> "Regarding claims 40, 41, 44, and 45, the limitations are met by the above discussion"

The discussions above relating to the claims establishes the allowability of claims 40, 41, 44, and 45. The discussion in the prior art paragraphs relating to claims 32-39 is particularly pertinent.

9. Applicant has amended claim 46 to overcome the objections of the Examiner. As now written, claim 46 recites that electrodes in first positions in the vest provide first signals indicative of first problems in the patient's heart and electrodes disposed in second positions in the vest provide second signals indicative of second problems in the patient's heart, that the first positions are in the front of the vest and the second positions are in the back of the vest and that the first problems occur more frequently than the second problems. Applicant respectfully submits that the claim, as now written, eliminates any problem expressed by the Examiner.

10. The Examiner has stated the following concerning claims 47, 48, and 79-109.

> "Regarding claims 47, 48, and 79-109, the limitations are met by the above discussion."

Claims 47, 48, 80, 91, 94, 95, 96, 97 and 98 recite a combination of a vest, electrodes in the vest and amplifiers adapted to be connected to the electrodes for producing, for a patient of any individual one of a plurality of different sizes, signals representing the heartbeat of the patient at the positions of the electrodes. None of the cited references discloses this combination.

Claims 90, 92, 93 and 99-109 recite combinations of a vest and electrodes in the vest for providing signals representing the heartbeat of the patient when the patient has any individual one of a plurality of different sizes. None of the references, including Greene, discloses a vest and electrodes in the vest for producing signals representing the heartbeat of a patient having any individual one of a plurality of different sizes. None of the references, including Greene, further discloses the disposition of electrodes V_1-V_6 in the vest when the patient has the individual one of the different sizes. The claims are also allowable over the claims for the reasons discussed above in detail.

11. Claims 5, 6, 12-15, 17, 18, 25-28 and 31 have been rejected under 35 U.S.C. § 103 (a) as being unpatentable over Greene in view of U.S. Patent No. 5,078,134 (Heilman). These claims are allowable for the reasons discussed above.

Reconsideration and allowance of the application are respectfully requested.

Please charge any fees or credit any overpayments to our Deposit Account No. 06-2425.

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Respectfully submitted,

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